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ABSTRACT

A 1975 study of decision-making in three university departments was designed to generate theory about the decision-making process in academic departments. The primary method of data collection was semistructured interviews with faculty members. Results show that members of the three departments shared general professional norms of: (1) individual autonomy; (2) a limited role for the department chairman; and (3) peer review. However, the operational definitions of these norms varied, and these differences can be explained within a theory. (MSE)

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THE STRUCTURE OF KNOWLEDGE AND DEPARTMENTAL SOCIAL ORGANIZATION

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Introduction

This study was designed to generate substantive theory about decision making in academic departments. The resulting theory was grounded in data about the decision making processes faculty in three university departments used to structure their curricula and programs. Members of those departments shared general professorial norms of individual autonomy, a limited role for the department chairman, and peer review. However, the operational definitions of these norms varied. Departmental decision making processes also varied. This paper describes the nature of those differences and delineates a theory explaining them.

University and Departmental Structure

While decision making processes in university departments have received little specific study, a developing body of research has increased understanding of those processes. A substantial array of evidence indicates that institutional variables of univeristy size, wealth, prestige, and complexity affect both departmental autonomy and departmental organization (e.g., Darkenwald, 1970; Dressel et al, 1970; Blau, 1973; Lodahl and Gordon, 1973). This research suggests that large, complex universities which emphasize research tend to support departmental autonomy and collegiality, while small institutions which emphasize teaching tend to maintain a bureaucratic administrative structure.

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Several researchers have shown relationships between the structure of knowledge of a discipline (variously conceptualized) and behavior in its associated departments. Haas and Collen (1971) found departmental differences in faculty evaluation and control to be related to the discipline's "humanistic orientation." Lodahl and Gordon found that the degree of paradigm development of a discipline shaped faculty interaction with graduate students (1972) and influenced both departmental and professorial autonomy (1973) in British as well as American institutions (Beyer and Lodahl, 1976).

Examining the effects of departmental quality and disciplinary paradigm development on the distribution of influence in universities, Lodahl and Gordon (1973) found that departments with higher rankings in the Cartter report (1966) exhibited collegial structures, while those with lower rankings displayed bureaucratic characteristics, a relationship which held even when university and department size were controlled. However, departments in "extremely large" universities reported less central administrative influence than those in smaller universities. At every quality level, the distribution of influence in physical science departments differed from that in social science departments. Lodahl and Gordon concluded that departments in physical science fields experience greater autonomy within their institutions than do those in the social sciences. They suggested that within departments, physical scientists rely on faculty committees to rationalize decisions about the teaching process, while decisions in social science departments result from the chairman's negotiations with individual faculty members.

This research provided a framework which guided the study reported in the following pages. While higher education has received greater attention from social science researchers since the 1960's, there remains less

descriptive data about departmental social systems and decision making processes than is needed for theory development. Thus, the research reported was designed to provide extensive description of the ways in which departments coordinate courses, develop or change programs and curricula, and make other curriculum decisions. These data provided the basis for grounded theory about those processes.

Method

The primary method of data collection was the semi-structured interview of faculty in three departments. The interviews were conducted over a period of four months in the spring of 1975. Their length ranged from forty-five minutes to over an hour. Interviews were taped and transcribed to avoid the inaccuracies associated with individual recording and recall. Before they were interviewed, faculty also completed a questionnaire which provided background information about the department and individual respondents. Interviews with university administrators and documents such as department meeting minutes, departmental reports to the Graduate School, Danforth evaluations, and program and course descriptions supplemented the faculty interviews.

Three departments of similar size and degree of complexity in a medium differentiated university (Darkenwald, 1970) were studied. Departments in chemistry and political science were chosen to represent the high and low extremes of paradigm development (Lodahl and Gordon, 1972). The department of mechanical engineering was added to represent a department in a professional school on the basis of the Haas and Collen (1971) argument that product visibility in professional schools affects departmental procedures for evaluating faculty.

An extensive description of the three departments and their decision making processes has been reported elsewhere (Adkison, 1976). Table I compares their size, programs, and distribution of rank, tenure and years in the department. The membership of the mechanical engineering department is most stable, while the chemistry department has the highest proportion of new faculty.

Analysis

Initial analysis attempted to apply Thompson's (1967) decision making theory to the three departments. Thompson used Festinger's (1950) theory of social comparison to explain organizational self-assessment and decision making. His two "basic variables of decision" -- belief in the completeness of cause and effect knowledge and crystallization of standards of desirability -- seemed consonant with the components of clarity and consensus included in the concept of paradigm (Kuhn, 1970). Thompson noted that organizational self-assessment becomes difficult when standards of desirability are ambiguous or disputed and when participants believe that the cause and effect knowledge needed to accomplish their tasks is incomplete. He argued that under such uncertain conditions, organizations, like individuals, evaluate their behavior by comparing themselves with a reference group.

Using paradigm development as a measure of uncertainty in scientific fields, Pfeffer, et al (1976) reported results compatible with Thompson's theory. After examining National Science Foundation grant allocations in four social science fields, they concluded that allocation decisions in fields with less developed paradigms were more likely to be influenced by particularistic, social considerations than are decisions in fields with more developed paradigms.

TABLE 1

	Political Science	Chemistry	Mechanical Engineering
Degree of Paradigm Development in discipline	low	high	high
Number of full-time faculty (excluding individuals on sabbatical leave)	11	16	11
Distribution by rank			
Professor	5 (45.5%)	3 (18.8%)	8 (72.7%)
Assoc. Professor	2 (18.2%)	7 (43.8%)	2 (18.2%)
Asst. Professor	4 (36.4%)	6 (37.5%)	1 (9.1%)
Tenured faculty	7 (63.6%)	11 (68.8%)	10 (90.9%)
Distribution by years in Department			
-Three or fewer	2 (18.2%)	6 (37.5%)	0
-Four - six years	6 (54.5%)	4 (25%)	1 (9.1%)
-Seven or more years	3 (27.3%)	6 (37.5%)	10 (90.9%)
Degree programs	3 (BA, MA, PhD)	4 (BA, BS, MS, PhD)	3 (BS, MS, PhD)

However, Thompson's theory proved to be incompatible with the decision making processes in the three departments observed. Social comparison was evident in group and individual decision making in departments in the high paradigm fields of chemistry and mechanical engineering and absent in the department in the low paradigm field of political science.

In evaluating their own programs, members of the chemistry department compared their offerings with those of other chemistry departments -- both in the most prestigious institutions where many faculty members had received their training and in neighboring universities. A member of the department reported feeling "disgraced" when his department's BA program compared unfavorably with programs in other departments, and he worked to upgrade the program. The most convincing argument for curriculum or program change was a demonstration that practices in the department deviated from those in the referent departments. The referent power of the departmental group reportedly influenced voting and grading decisions of individuals in the chemistry and mechanical engineering departments, as faculty members accomodated their behavior to the group, even when not completely agreeing with the group decision.

In contrast, in the low paradigm department, where standards of desirability were least crystallized and knowledge of cause and effect relationships was most incomplete, some faculty rejected the validity of comparison with departments in other institutions and argued that they should develop a curriculum uniquely suited to regional concerns -- a conclusion supported by Danforth evaluators. One faculty member stated the extreme of this position, arguing that undergraduates "don't need to know a hell of a lot of international relations" and suggesting that students wanting to learn about China or the Soviet Union go elsewhere.

Lack of disciplinary consensus encouraged individuals in the low paradigm field to reject social comparison as a means of departmental assessment. In the high paradigm fields, consensus not only encourages comparison but makes it necessary. Some members of a low paradigm field see no need to maintain comparability among departments. Thus Thompson's theory was rejected as a means of explaining curriculum decisions.

A model derived from Homan's (1950) social systems theory was developed from the descriptive data. Figure 1 states the interrelationships of observed variables stated as primitive terms, i.e., words that denote human agents and their actions (Zetterberg, 1965). In figure 2, the variables are stated as derived terms.

The model posits that an aspect of a department's technical environment, the structure of knowledge of the discipline, affects the amount of formal and informal interaction among department members. A high degree of paradigm development in a field allows faculty to define teaching tasks clearly and promotes faculty consensus about departmental goals.

Faculty in the mechancial engineering and chemistry departments tended to agree about the goals of their curriculum, though they did not always agree upon the means of reaching them. However, consensus about clear goals reduces conflict in evaluation of processes, since over time the department can reject those methods which do not achieve those goals. For example, a respondent noted that nationally and in his own department, chemistry curricula have shifted their emphasis from description to theory over the past ten years. As a result, he felt students now are familiar with quantum mechanics but don't know what sodium choride is, and chemists are reexamining the curricula. A mechanical engineering professor noted a similar trend in his field.

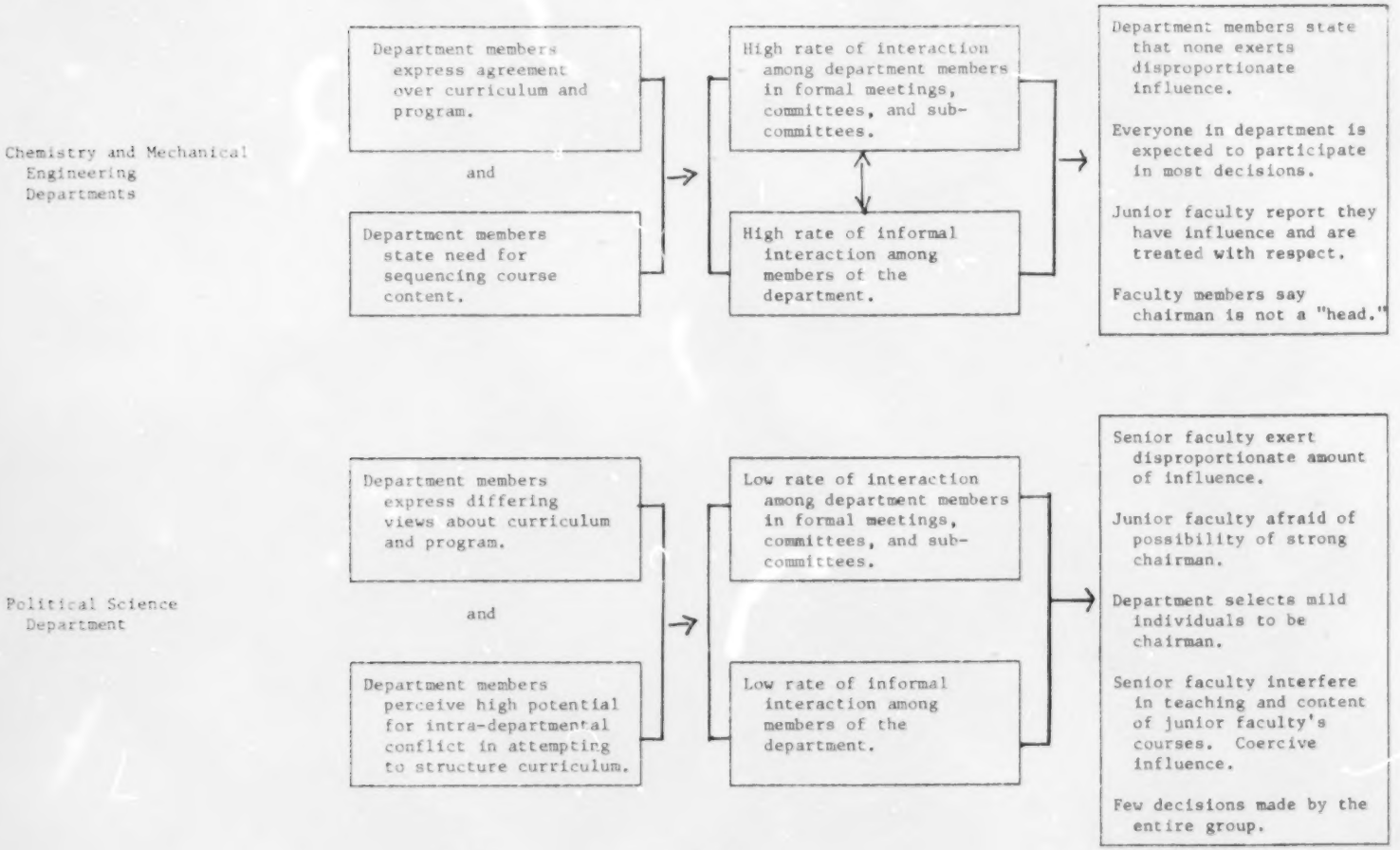
Chemistry and Mechanical Engineering Departments
Department members express agreement over curriculum and program.
and
Department members state need for sequencing course content.
High rate of interaction among department members in formal meetings, committees, and sub-committees.
High rate of informal interaction among members of the department.
Department members state that none exerts disproportionate influence.
Everyone in department is expected to participate in most decisions.
Junior faculty report they have influence and are treated with respect.
Faculty members say chairman is not a "head."
Political Science Department
Department members express differing views about curriculum and program.
and
Department members perceive high potential for intra-departmental conflict in attempting to structure curriculum.
Low rate of interaction among department members in formal meetings, committees, and sub-committees.
Low rate of informal interaction among members of the department.
Senior faculty exert disproportionate amount of influence.
Junior faculty afraid of possibility of strong chairman.
Department selects mild individuals to be chairman.
Senior faculty interfere in teaching and content of junior faculty's courses. Coercive influence.
Few decisions made by the entire group.

FIGURE 1

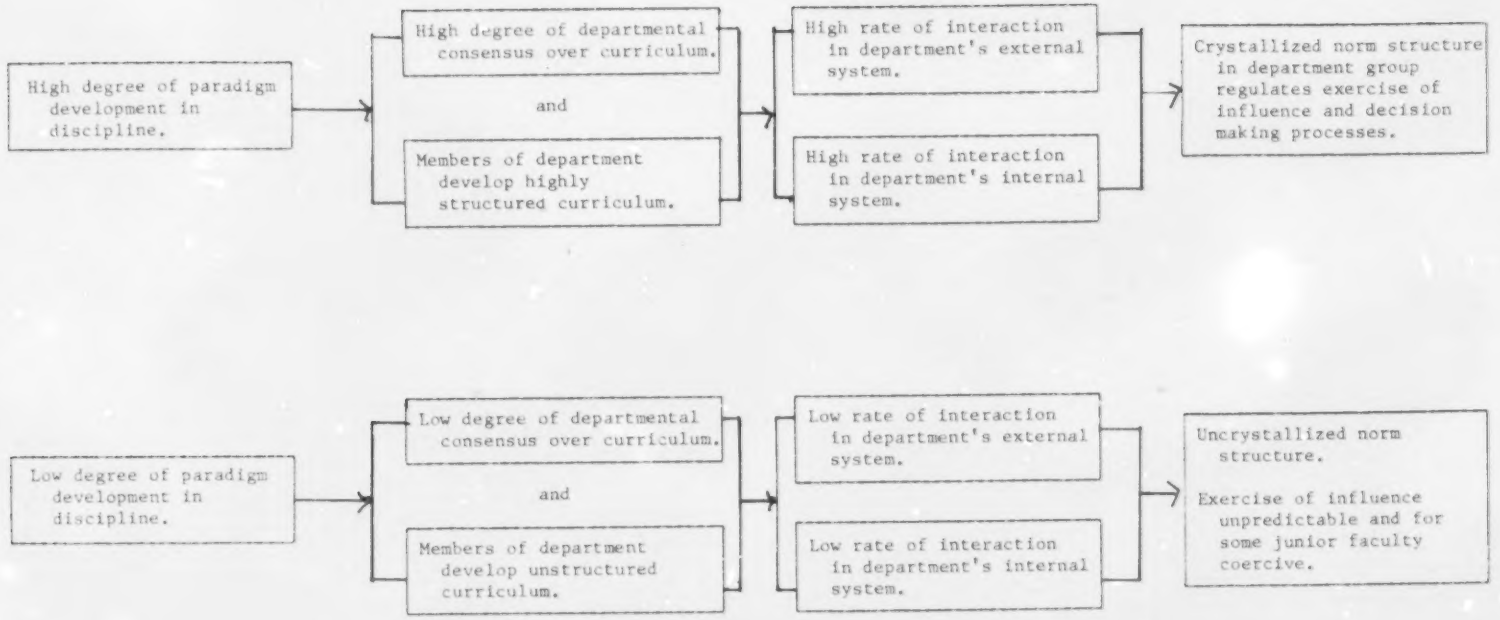
High degree of paradigm development in discipline.
High degree of departmental consensus over curriculum.
and
Members of department develop highly structured curriculum.
High rate of interaction in department's external system.
High rate of interaction in department's internal system.
Crystallized norm structure in department group regulates exercise of influence and decision making processes.
Low degree of paradigm development in discipline.
Low degree of departmental consensus over curriculum.
and
Members of department develop unstructured curriculum.
Low rate of interaction in department's external system.
Low rate of interaction in department's internal system.
Uncrystallized norm structure.
Exercise of influence unpredictable and for some junior faculty coercive.

FIGURE 2

Faculty stated that group decision making is necessary to coordinate course content and to make other program decisions. Both the chemistry and mechanical engineering departments developed an elaborate array of formal divisions of responsibility. The high rate of formal interaction promoted sentiments of liking within the group, thus facilitating extensive informal interaction. Members of the mechanical engineering department interacted so often that faculty considered it difficult to separate the formal from the informal decision making processes, though the entire department ultimately voted on every decision.

Proposals were often initiated during informal discussions and modified as a result of those conversations before they were submitted to the formal committee system. Respondents in the high paradigm fields tended to express esteem for their colleagues. Almost every member of the mechanical engineering department volunteered positive statements about others in the group.

Because of their extensive formal and informal interaction and the consequent development of sentiments of mutual esteem, the mechanical engineering and chemistry departments formed cohesive groups with crystallized norm structures. The norm structure of each group affected the exercise of influence and departmental decision making processes.

The norms of the cohesive groups regulated the exercise of influence in the chemistry and mechanical engineering departments. Both the legitimate power of the office of chairman and the reward and coercive power associated with it were limited. Daily interaction, often in the form of joking, reminded the mechanical engineering chairman of the norm that he was a faculty member, not a "head," and an anti-administrator sentiment

was maintained. A former chairman who once attempted to violate the normative limit on authority by making a punitive course assignment was privately rebuked by his colleagues, and he quickly rescinded the decision.

In the mechanical engineering department, respondents indicated that no faculty members exerted disporportionate influence. Several respondents stated a norm of equality of influence and expertise. Junior faculty reported that from their first year in the department their opinions were treated "with respect" by others. In both chemistry and mechanical engineering, junior faculty had convinced the department to adopt curriculum and program changes.

The extensive interaction which occurred as a proposal moved through the committee structure to a final vote enabled faculty in mechanical engineering to modify proposals to meet any objections, thus reducing the likelihood of divisive conflict. While faculty meetings were often settings for lively debate, opponents left the meetings friends. The decision making style in both chemistry and mechanical engineering departments allowed everyone an opportunity to influence outcomes. The process was time consuming. It took the mechanical engineering department five years to institute a major curriculum reform. However, the process maintains consensus within the group as positions are debated and modified before the final decision, thus promoting compliance with it.

In high paradigm fields issues arise which cannot be resolved by referring to the shared criteria and consensus of the disciplinary paradigm. The chemistry chairman noted a constant "empire building" press as faculty in different specializations attempted to enlarge their share of the curriculum. Members of the department also disagreed over the need for a

foreign language requirement, an argument involving differing definitions of what constitutes an educated man. However, the number of such disputes was small, and the department's feeling of consensus was not disrupted.

Individuals in the chemistry and mechanical engineering departments express both a sense of individual autonomy and the belief that they can influence group decisions. The pressure to coordinate courses and sequence content does not create a loss of perceived autonomy.

Group development in the two high paradigm departments illustrates Homan's (1950) social systems theory. Homans stated that a human group is composed of two systems: the external system developed to accomplish those tasks necessary for the group's survival; and the internal system, or elaboration of group behavior which results from and may either reinforce or undermine the structure of the external system. His theory predicts that interactions among individuals made necessary by the structure of the external system foster sentiments of liking among the individuals involved. because they like each other, those individuals continue to interact informally, developing the group's internal system. Continued informal interaction further increases mutual liking and may promote increased interaction in the external system. As they interact, the members of the group develop norms (Figure 2).

Homans suggested that his theory would not apply to interactions when a condition such as the power of one man over another made interaction unpleasant to at least one of the participants. The nature of group development in the political science department suggests that lack of consensus and an unclear task create such a condition for academic departments.

The political science department's decision making processes differed markedly from those in chemistry and mechanical engineering. The discipline's low paradigm development creates the potential for divisive conflict over curriculum. While some faculty expressed a need for "good prerequisites"

for advanced courses, the department was unwilling to attempt to implement a structured course sequence. One senior professor recalled an unnerving experience in another department which tried to achieve a consensus over an introductory course. The conflict was enough to discourage him from engaging in group decision making over a curriculum issue. Another professor felt that the costs of attempting major curriculum revision discouraged the department from such an endeavor. Younger faculty were somewhat more willing to discuss curriculum change.

Informal interaction among the political scientists, especially the senior faculty, was equally restricted. If there could be said to be a group norm, it was that faculty members remain friendly but aloof. "Good fences make good neighbors," a respondent explained. As a result, another member could describe the department as "a collection of isolates." Unlike respondents in chemistry and mechanical engineering, respondents in this department did not volunteer sentiments of esteem for their colleagues, though some made disparaging comments about them.

Lack of interaction prevented the crystallization of a norm structure for the group. The exercise of influence thus was often unpredictable and somewhat feared by junior faculty. Because group norms did not limit the chairman's influence, the department limited the power of the position by selecting "mild" chairmen who would not attempt to use the office to shape faculty behavior. They did this with the knowledge that having a less agressive chairman put the department at a disadvantage in its negotiations with the dean.

While the department had no factions, both specialization and patterns of interaction tended to split junior from senior faculty members. Issues

of promotion and tenure also divided the two groups which disagreed about the criteria to be used in such decisions. The junior faculty were in a tenuous position. Senior faculty were willing to try to change a junior member's teaching methods and course content, even to the extent of observing classes and suggesting specific changes. When one junior professor openly refused to "jump through any hoops," his contract was not renewed. The Marxist emphasis of another junior professor's introductory course was modified after a series of informal discussions with the chairman. A senior professor stressed the "gentle" nature of such influence attempts; however, the threat of non-renewal of a contract remained. Not surprisingly, a respondent noted that junior faculty were especially "afraid" of the possibility of a strong chairman. When asked if similar incidents occurred in their own departments, respondents in chemistry and mechanical engineering stated they had never heard of similar interference in an instructor's courses.

The most influential faculty in the political science department reportedly exerted "a disproportionate amount of influence," though their influence tended to be that of the potential to block others' recommendations. An individual developing a major curriculum revision noted that part of his strategy was to design the changes so that senior faculty would be unaffected and thus less likely to oppose him.

The department as a group voted on many decisions, such as the introduction of new courses. However, the group tended to approve anything about which a single member feels strongly. Course assignments were made, as much as possible, to suit individuals. For example, the large, introductory course was taught by whomever volunteered. This created no problems, a respondent explained, since usually someone "crops up" to teach it. In

the past, when no one volunteered to teach a course, the chairman assumed the task so it could be offered.

Within limits, such as those described above, members of the political science department have a sense of individual autonomy but little sense of being able to shape departmental behavior. Members of the chemistry and mechanical engineering departments felt autonomous and also influential in departmental decisions.

The differing decision making styles and patterns of influence in the three departments were created by different social systems, specifically by contrasting degrees of group cohesiveness. Differing degrees of disciplinary paradigm development create differing conditions for the development of social systems.

Results of other research support a relationship between both task clarity and group consensus about goals and group structure. March and Simon (1958) proposed that the greater the extent group members perceive shared goals, the stronger the individual's propensity to identify with the group. Raven and Rietsma (1960) found that clarity of goal and path affected the individual's relation to the group. They found that subjects with a clear picture of the group's task and the means for achieving it reported a greater sense of belonging to the group, greater concern for group performance, greater task involvement, a greater ability to perceive social differentiation in the group and a greater willingness to accept influence from the group than did subjects under conditions of unclear goal and path. Anderson (1975) also found that the level of cohesiveness of a task group is a function of goal-path clarity, even under varied conditions of value similarity and level of prior attraction among members. He argued that the effect of value

similarity among members of a task group contributes less to group cohesiveness than does goal-path clarity.

This research provides support for raising the substantive theory stated in figures 1 and 2 to a formal level applicable to task groups in general. The theory expands Homans' social systems theory by delineating variables in the task environment that promote or impede interaction. (Figure 3)

If the group has a consensus about its task and the nature of the task is clear, there is a high probability that the rate of interaction in the group's external system will be high. A high rate of interaction in the external system will promote a high rate of interaction in the group's internal system. If the rate of interaction is high, there is a high probability that the group will develop a crystallized norm structure governing decision making and influence within the group.

Conversely, if the group lacks consensus about the task and the task is ambiguous, it is probable that the rate of interaction in the group's external system will be low. The low interaction rate in the external system will discourage interaction in the internal system. If the rate of interaction in the external and internal systems is low, it is probable that the group's norm structure will remain uncrystallized.

Discussion

Considerable debate over the meaning of the concept paradigm has led to attempts to clarify it (Kuhn, 1970). Kuhn indicates that the term is more properly applied to the areas of specialization of limited research communities than to entire disciplines. Further discussion of the relationships between social structure and the structure of knowledge of academic departments would profit from the use of categories not based on the concept of paradigm. It appears that the elements of consensus over the

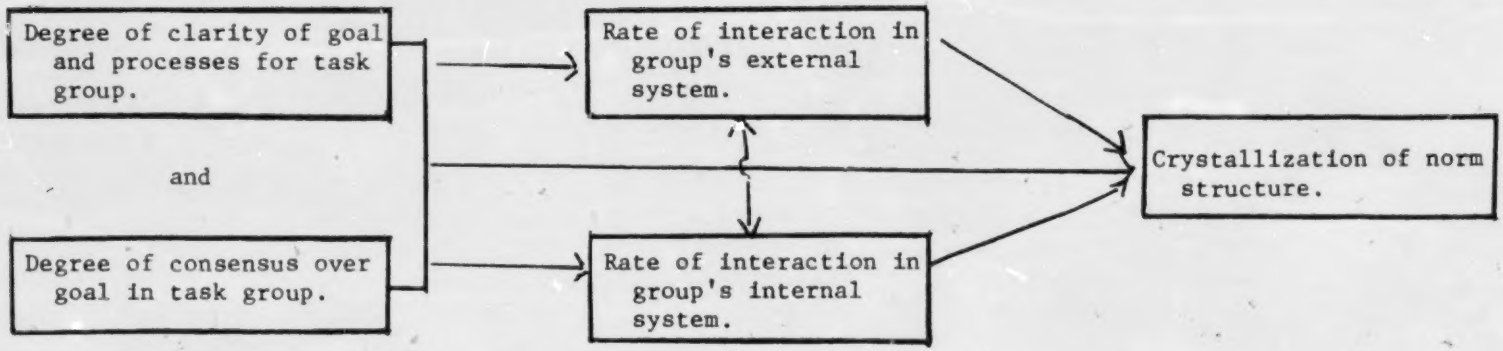
Degree of clarity of goal and processes for task group.
and
Degree of consensus over goal in task group.
Rate of interaction in group's external system.
Rate of interaction in group's internal system.
Crystallization of norm structure.

FIGURE 3

basics of the field and clarity of the teaching task are significant elements of a discipline's structure that affect departmental social structure. Using degrees of these two elements rather than the concept of paradigm to categorize departmental fields extends the results of this study and others (Lodahl and Gordon, 1972, 1973; Beyer and Lodahl, 1976) to departments outside the physical and social sciences where the concept of paradigm cannot be applied (Kuhn, 1970). The effects of consensus and clarity on multidisciplinary departments and those in the arts and humanities may be similar to those noted in the physical and social sciences.

While the discipline's structure of knowledge affects the potential for conflict and thus decision making processes in a department, it is the cohesiveness promoted by task clarity and consensus that produces a crystallized norm structure which regulates exercise of influence and decision making processes and encourages consensus over issues unrelated to the paradigm. Factors other than paradigm development may lead to the creation of cohesive task groups among academics. Petrie (1976) argued that non-epistemological factors must be present for an interdisciplinary effort to succeed. Most important of these factors is the presence of a "clear and recognizable idea which can serve as a central focus for the work." This idea may be embodied in an individual who leads the project through force of personality, or it may be imposed by an external necessity which defines the group's mission. Closely associated with the dominance of an idea is the need for achievements which provide the group with feedback confirming the original idea. The dominant idea also facilitates the development of a cohesive group. Thus interdisciplinary and multidisciplinary groups are

not necessarily destined to choose between constant conflict and individual isolation.

The decision making styles of academic departments need further study. Consensus and task clarity, whether defined by a disciplinary paradigm or imposed by the charismatic individual or external need, appear to facilitate the development of a cohesive social system which promotes communication and cooperation among its members. However, groups lacking a clear task or consensus are more likely to be conflict ridden. The political science department studied here averted conflict by avoiding the coordination of individual activities through structuring of the curriculum. Identification of other means of preventing or resolving conflict in similar departments would benefit the study of both academic departments and task groups in general.

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